
The Relationship Between Parental Involvement With Pain And Anxiety Levels Among Preschool Children During Invasive Procedures

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Abstract

Hospitalization can be a stressful experience for children, especially when they undergo invasive procedures, which often cause pain and anxiety, which can impact their physical and psychological well-being. This can lead to trauma during hospitalization. This study aimed to identify the relationship between parental involvement and pain and anxiety levels in preschool children during invasive procedures. This study used a quantitative approach and research's design was a cross-sectional survey. A total of 52 children aged 3-6 years (preschool) with non-oncology cases were treated at the Private Hospital "X" in Medan with purposive sampling. The instruments in this study were questionnaires and pain scale observation. Bivariate test used the non-parametric Spearman's Rho test. The results showed that there was no significant relationship between parental involvement and preschool children's pain level during invasive procedures and there was a significant relationship between parental involvement and anxiety level of preschool children undergoing invasive procedures. Parents' inability to provide appropriate support has the potential to worsen the child's emotional condition, which in turn increases the risk of failure of the procedure, prolongs the duration of the procedure, and adds to the psychological burden on health workers. It is recommended that further researchers conduct intervention studies to identify parental involvement during hospitalization.

Keywords: Anxiety Level, Invasive Procedure, Pain Level, Parental Involvement, Preschool Children

INTRODUCTION

Preschool-aged children tend to experience anxiety during hospitalization (Agustina et al, 2023). Some of this anxiety stems from examinations by staff and invasive procedures that can make children feel uncomfortable (Jatmiko & Tambunan, 2024). Children are particularly susceptible to anxiety during hospitalization. Children can experience mild, moderate, or severe levels of anxiety, which are experienced through various treatment procedures (United Nations Children's Fund (UNICEF), 2018).

Various factors contribute to anxiety in children undergoing invasive procedures, including gender, parental presence, pain, and injury response (Agustina et al., 2023). Previous research found that gender can influence a child's anxiety levels (Fahira, 2022). Another previous study found a relationship between parental presence and children's anxiety during intravenous therapy (Sumarni, Yuliana, & Sari, 2018). Furthermore, there was a relationship between pain and anxiety in children (Rofiqoh, 2016). Another finding also found a relationship between injury responses and anxiety in children (Afriani & Rahayuningsih, 2016).

The impact of hospitalization on pediatric patients can cause anxiety and stress at all ages. Children often perceive hospitalization as punishment, leading to feelings of shame, guilt, or fear (Çelikel, Büyük & Yıldızlar, 2019). This leads to aggressive reactions such as anger and rebellion, verbal expressions of anger, and refusal to cooperate with nurses. These conditions, if present, can impact the care process in the hospital (Marbun & Tambunan, 2023). Anxiety is an emotional response and subjective individual assessment influenced by the subconscious, and its specific causative factors are unknown (Perdana & Tambunan, 2024).

Previous research described that there was a relationship between parental roles and anxiety in children undergoing invasive procedures at the Sudiang Raya Community Health Center. It is hoped that parents can collaborate with healthcare professionals and that parental presence can provide a sense of comfort to children (Rahmadana, Semana & Nurafrani, 2023). Parental presence is the presence shown by parents towards their children. Parental presence at all times during a child's hospitalization can help reduce a child's anxiety. Parents can be involved in treatment decisions,

accompany the child during procedures, and provide positive support. The principle is to always maintain parent-child interaction (Siahaan & Tambunan, 2025).

Good mother-child interaction has a positive impact on children's anxiety levels. The better the mother-child interaction, the lower the anxiety levels of preschool children (3-6 years old) during hospitalization. Parental presence is the presence shown by parents towards their children. Children can become strong, caring, and resilient individuals when their parents are present. Parents have an open awareness and demonstrate parental presence, so that children feel cared for, understood, and connected to their parents (Kumalasari et al., 2023).

Parental involvement is a crucial component of child care. Their presence, emotional support, a sense of security, and active participation during medical procedures can help children overcome fear and reduce their perception of pain. This approach aligns with the concept of family-centered care, which positions the family as the primary partner in providing child health care. Based on the background above, the researcher is interested in conducting a study entitled "The Relationship between Parental Involvement and the Level of Pain and Anxiety Among Preschool Children Undergoing Invasive Procedures at Private Hospital (X) in Medan"

RESEARCH METHODS

This study used a quantitative approach. The research design used was a cross-sectional survey. Cross-sectional research is a type of observational study conducted over a short period of time to collect data from a group of respondents (Simanullang & Tambunan, 2023; Basiroen et al., 2025; Judijanto et al., 2024). A total of 52 children aged 3-6 years (preschool) with non-oncology cases were treated at the Private Hospital "X" in Medan with purposive sampling.

The instruments in this study were a questionnaire and pain scale observation. The parental involvement questionnaire with 13 statements used the Guttman scale (No = 0, Yes = 1) and the measurement categories were Good (9-13), Sufficient (5-8), and Poor (0-4). The pain level instrument used the Wong Baker Face Scale with the measurement categories: No pain (0-1), Mild pain (2-3), Moderate pain (4-5), Severe pain (6-7), and Very severe pain (8-10). The anxiety level questionnaire consisted of 16 statements using the Guttman scale (No = 0, Yes = 1) and the measurement categories were Mild (0-4), Moderate (5-8), Severe (9-12), and Panic (13-16).

The data normality test used the One-Sample Kolmogorov-Smirnov test, and a p-value of 0.000 ($\alpha < 0.05$) was found, concluding that the data were not normally distributed. Therefore, it was decided to use the non-parametric Spearman's Rho test (Puspitasari et al., 2025).

RESULTS AND DISCUSSION

Table 1. Respondent Characteristics (Parents)

Respondent Characteristics (Parents)	Frequency (f)	Percentage (%)
Age:		
20-25 Years	7	13.5
26-30 Years	13	25.0
31-35 Years	17	32.7
36-40 Years	11	21.2
41-45 Years	4	7.7
Gender:		
Male	8	15.4
Female	44	84.6
Relationship with the Child:		
Biological children	52	100
Occupation:		
Housewife	23	44.2
Civil	12	23.1
Servant/Police/Military		
Self-Employed	8	15.4
Private Employee	5	9.6
Laborer	3	5.8
Farmer	1	1.9
Total	52	100

Based on Table 1 above, it is known that the distribution of parental characteristics by age is that of the 52 respondents, the majority are aged 31-35 years (17 people) (32.7%). The majority of gender is female (44 people) (84.6%). Based on relationship with children, all are biological children (52 people) (100%). Based on occupation, the majority are housewives (23 people) (44.2%). Previous findings showed that the age category of respondents was early adulthood with 84 respondents (47.7%), most of the respondents were female with 145 respondents (82.4%). The majority of respondents had a final education level of senior high school with 83 respondents (47.2%). The majority of respondents had jobs as housewives with 119 people (67.6%) (Athariq et al., 2023).

Another finding showed that parents in the intervention group (65.2%) and control group (65.2%) were mostly female. Parents in the intervention group (95.7%) and control group (87%) were mostly adults (19-59 years). Parents in the intervention group (56.5%) and control group (39.1%) mostly had a high school education. The age of children in the intervention group (87%) and control group (69.65) was mostly in the school age category (7-12 years). The gender of children in the intervention group (65.2%) and control group (60.9%) were mostly female (Murniyanti & Prasetyorini, 2026).

Parents' experience in caring for children is also a significant factor influencing the role of support. Parents with more experience tend to be better prepared for medical procedures. This preparedness increases their confidence in assisting their children. This contributes to a decrease in children's anxiety during IV insertion (Ilyas, Saputra, & Halizasia, 2024).

In many cultures, including Indonesia, mothers generally play the primary role as caregivers and therefore spend more time with their children during hospitalization. Mothers tend to be more involved in meeting their children's basic needs, providing emotional support, and helping them adapt to the hospital environment.

Fathers often play a role in providing financial support, making decisions regarding treatment, and supporting the family as a whole. Although fathers' hospital attendance is sometimes less frequent than mothers' due to work demands, their involvement still has a positive impact on a child's psychological well-being. A father's presence and support can increase a child's sense of security, reduce anxiety, and strengthen a child's coping mechanisms during treatment.

Table 2. Respondent Characteristics (Children)

Respondent Characteristics (Children)	Frequency (f)	Percentage (%)
Age:		
3 Years	13	25.0
4 Years	17	32.7
5 Years	9	17.3
6 Years	13	25.0
Gender:		
Male	28	53.8
Female	24	46.2
Hospitalization Experience:		
First Time	32	61.5
Repeatedly	20	38.5
Companion:		
Father	8	15.4
Mother	44	84.6
Total	52	100

Based on table 2 above, it is known that children based on age are from 52 child respondents, aged 3 years as many as 13 people (25.0%), and aged 6 years as many as 13 people (25.0%). The majority of children are male as many as 28 people (53.8%). Based on hospitalization experience, the majority is the first time as many as 32 people (61.5%). Based on assistance, the majority are accompanied by their mothers as many as 44 people (84.6%).

Previous research from a total of 73 (100%) respondents showed that the age of the children were mostly 2-6 years with a total of 46 (63.0%) and that the gender of the children was mostly girls with a total of 37 (50.7%) children (Rahmadana et al., 2023). Another study showed that the age category, the most children were 3 years old with a total of 13 people (32.5%). Based on gender, the majority were female with a total of 29 people (72.5%). Based on experience of being treated, the majority had never been treated with a total of 30 people (75.0%) (Athariq et al., 2023). Children who are accompanied by emotionally stable parents tend to exhibit lower anxiety. This is consistent with adaptation theory, which emphasizes the importance of the environment in shaping an individual's response to stress (Anonim et al., 2024).

Table 3. Frequency Distribution of Parental Involvement, Pain Level, and Anxiety Level

Category	Frequency (f)	Percentage (%)
Parenteral's Involvement:		
Good	36	69.2
Sufficient	11	21.2
Poor	5	9.6
Anxiety's Level:		
Panic	0	0.0

Severe	1	1.9
Moderate	19	36.5
Mild	32	61.5
Pain Scale:		
No Pain	11	21.2
Mild Pain	30	57.7
Moderate Pain	10	19.2
Severe	1	1.9
Very Severe	0	0.0
Total	52	100

Table 3 shows that the distribution of the 52 respondents, based on parental involvement during hospitalization was categorized as good, with 36 (69.2%). Regarding pain levels, the majority experienced mild pain, 30 (57.7%). Regarding anxiety levels, the majority were in the mild anxiety category, 32 (61.5%).

Previous findings showed that the majority of respondents had a parental role in the sufficient category, namely 149 respondents (84.7%). Most children experienced anxiety categorized as panic, as many as 125 respondents (71%) (Ismail, Sulistiani & Mohamad, 2025). Another study showed on parental presence, the majority of parents were present beside their child during invasive procedures, as many as 28 people (70.0%). Based on the level of anxiety, 16 children (40.0%) experienced mild anxiety (Athariq et al., 2023).

The results of previous research were obtained after intervention was carried out on children, there were 32 (69.6%) children experiencing pain in the mild category (Ilyas et al., 2024). A study of 42 pediatric patients in the emergency room of Mardi Waluyo Regional Hospital, Blitar City, showed that the majority experienced moderate pain (52%) and severe pain (29%). A high proportion of children experienced moderate and severe pain during invasive procedures. This highlights the importance of implementing an atraumatic approach and effective pain management during invasive procedures in the emergency room (Kuncoro, 2025).

Previous results showed that after being educated by nurses, most parents in the intervention group (91.3%) had a good role, while in the control group (69.6%) had a sufficient role. The table shows that the majority of parents in the intervention group were in the good role category. Conversely, the control group was still dominated by those in the sufficient and less than good categories. This indicates that without education, parents' roles in supporting their children are not optimal. These findings reinforce the importance of educational interventions in nursing practice (Apriani, 2020).

The role of parents is also closely related to the emotional state displayed during the action. Calm parents tend to provide a sense of security to their children. Conversely, parental anxiety can be transferred to their children through nonverbal interactions. This emotional connection indicates the presence of a modeling mechanism in anxiety responses (Marlianti, 2023).

The increased role of parents can also be seen in their ability to provide emotional support to their children. This support provides a sense of security and increases the child's comfort during medical procedures. The emotional presence of parents has been shown to play a role in reducing distress in children.

Techniques such as talking or telling stories to children can distract them from pain. Distraction is an effective non-pharmacological strategy for supporting invasive procedures. Reducing children's anxiety also contributes to a smoother IV insertion. Calmer children tend to be more cooperative, making it easier for healthcare professionals to perform the procedure. This also reduces the risk of failure or psychological trauma. Anxiety reduction efforts are crucial for improving the quality of pediatric healthcare (Ilyas et al., 2024).

Table 4. Spearman Rho Test of the Relationship between Parental Involvement and Pain Level of Preschool Children Undergoing Invasive Procedures

Variable	Correlation	Parenteral Involvemen	Pain Level
Parenteral Involvement	Correlation Coefficient	1	.025*
	Sign. (2-tailed)		.861
	N	52	52
Pain Level	Correlation Coefficient	.025*	1
	Sign. (2-tailed)	.861	
	N	52	52

A Spearman's rho test yielded a Sig. 0.861 ($\alpha > 0.05$), indicating no significant relationship between parental involvement and preschool children's pain levels during invasive procedures at Private Hospital "X". Furthermore, a correlation coefficient of 0.025 indicated no correlation. After implementing parental presence during IV insertion, it can be concluded that parental presence plays a very important and effective role in reducing the pain scale of children during the IV insertion process in the hospital (Aisyah, 2025).

Table 5. Spearman Rho Test of the Relationship between Parental Involvement and Anxiety Levels of Preschool Children Undergoing Invasive Procedures

Variable	Correlation	Parenteral Involvement	Anxiety Level
Parenteral Involvement	Correlation Coefficient	1	-.291*
	Sign. (2-tailed)		.037
	N	52	52
Anxiety Level	Correlation Coefficient	.291*	1
	Sign. (2-tailed)	0.037	
	N	52	52

After conducting the Spearman rho test, a Sig. value of 0.037 ($\alpha < 0.05$) was obtained, indicating a significant relationship between parental involvement and anxiety level of preschool children undergoing invasive procedures at Private Hospital "X". In addition, a correlation coefficient of -0.291 was obtained, indicating a weak negative correlation.

The study results showed a p-value of 0.000 ($\alpha < 0.05$), indicating a significant relationship between parental role and child anxiety. This indicates that the better the parent's role in accompanying the child during hospitalization, the lower the child's likelihood of experiencing severe anxiety (Ismail, Sulistiani & Mohamad, 2025).

Another study showed the results of the chi square test with a p value = 0.030 ($\alpha < 0.05$) so it can be concluded that there is a relationship between the presence of parents and the level of anxiety of preschool children (3-6 years) when invasive procedures are carried out in the Emergency Room of Dr. Midiyato Suratani Hospital, Tanjungpinang (Athariq et al., 2023).

Previous findings found a relationship between parental role and anxiety in children undergoing invasive procedures, with a p-value of 0.015. The better the parents' role in accompanying and caring for their children during invasive procedures, the lower the child's anxiety level (Rahmadana et al., 2023).

CONCLUSIONS

Based on the results of the research, the parental involvement during hospitalization was categorized as good, pain level was categorized as mild pain and anxiety level were in the mild anxiety category. There was no significant relationship between parental involvement and preschool children's pain level during invasive procedures and there was a significant relationship between parental involvement and anxiety level of preschool children undergoing invasive procedures at Private Hospital "X". Parents' inability to provide appropriate support has the potential to worsen the child's emotional condition, which in turn increases the risk of failure of the procedure, prolongs the duration of the procedure, and adds to the psychological burden on health workers.

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